MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2022/2023 (TERM ID 2210)

TPB3141 – PASSWORD AUTHENTICATION AND BIOMETRICS

(All sections / Groups)

9 FEBRUARY 2023
2.30 p.m – 4.30 p.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 6 pages, excluding the cover page, with 5 questions only.

2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please print all your answers in the Answer Booklet provided.

Question 1:

Please attempt **ALL** multiple-choice questions. **ONE (1)** mark for each question.

[10 marks]

1. An example of identification can be a(n) _____; whereas an example of authentication is a(n) _____.
   a. password; username
   b. ID; email address
   c. username; password
   d. face; login device geolocation

2. _____ biometrics is exposing to lesser privacy concerns because they are replaceable.
   a. Biological
   b. Physiological
   c. Behavioral
   d. Geolocation

3. _____ can find and recognize unknown faces in a photograph based on photographs of known people
   a. Face identification
   b. Face verification
   c. Face recognition
   d. Facial expression recognition

4. A fake finger can be made from wax or Play-Doh based on an image of a person's fingerprint, thus _____ will be the best option to be implemented.
   a. rolled impressions
   b. simultaneous plain impressions
   c. live finger detection
   d. inked fingerprints

5. _____ requires the speaker saying exactly the enrolled or given password.
   a. Text-filtered speaker verification
   b. Text-independent speaker verification
   c. Text-dependent speaker verification
   d. Text-prompted speaker verification

Continued .....

6. Facial recognition can be used in a _____ application, such as a face image captured by surveillance cameras.
    a. overt
    b. habituated
    c. covert
    d. non-attended

7. In _____, there is no guarantee that a record of the individual's biometrics is contained in the existing set of biometric within the organization's database.
    a. open-set verification
    b. closed-set verification
    c. closed-set identification
    d. open-set identification

8. Examples of _____ can be found in various access control methods, like two-factor authentication, passwordless sign-on, and other access controls, but it's not just about letting authorized users in, it's also about keeping certain files inaccessible. One of the popular techniques used is _____.
    a. confidentiality; hashing
    b. integrity; biometrics
    c. non-repudiation; electronic signature
    d. confidentiality; encryption

9. An _____ consists of policies, procedures and other controls involving people, processes, and technology related to information security management.
    a. HIPAA compliance
    b. Sarbanes–Oxley Act of 2002
    c. Digital Millennium Copyright Act
    d. ISO/IEC 27001

10. _____ is nickname of the Defense Department's Trusted Computer System Evaluation Criteria, a book published in 1985.
    a. Transport Layer Security (TLS)
    b. Secure Sockets Layer (SSL)
    c. Secure Electronic Transaction (SET)
    d. The Orange Book

Continued .....

Question 2:

a) Fill in the blanks with the most appropriate basic criteria for biometric security system:

i. _____: twins will have two different sets of fingerprints.
ii. _____: retina remains unchanged throughout the life.
iii. _____: face images can be easily collected with any types of cameras.
iv. _____: users usually feel more comfortable to provide their signatures instead of DNA.
v. _____: > 96% of human populations will have valid fingerprints.

[5 marks]

b) "*Effective 1 July 2017, all Credit and Charge card payments at point-of-sale terminals and cash advance withdrawal facility in Malaysia must be authorized with a 6-digit Personal Identification Number (PIN) as signature will no longer be accepted.*"

In your opinion, why PIN is used to replace a biometric (signature) in this new implementation?

[3 marks]

c) Do you think the MMU CAMSYS System is an example of Single Sign-On (SSO)? Defend your answer.

[2 marks]

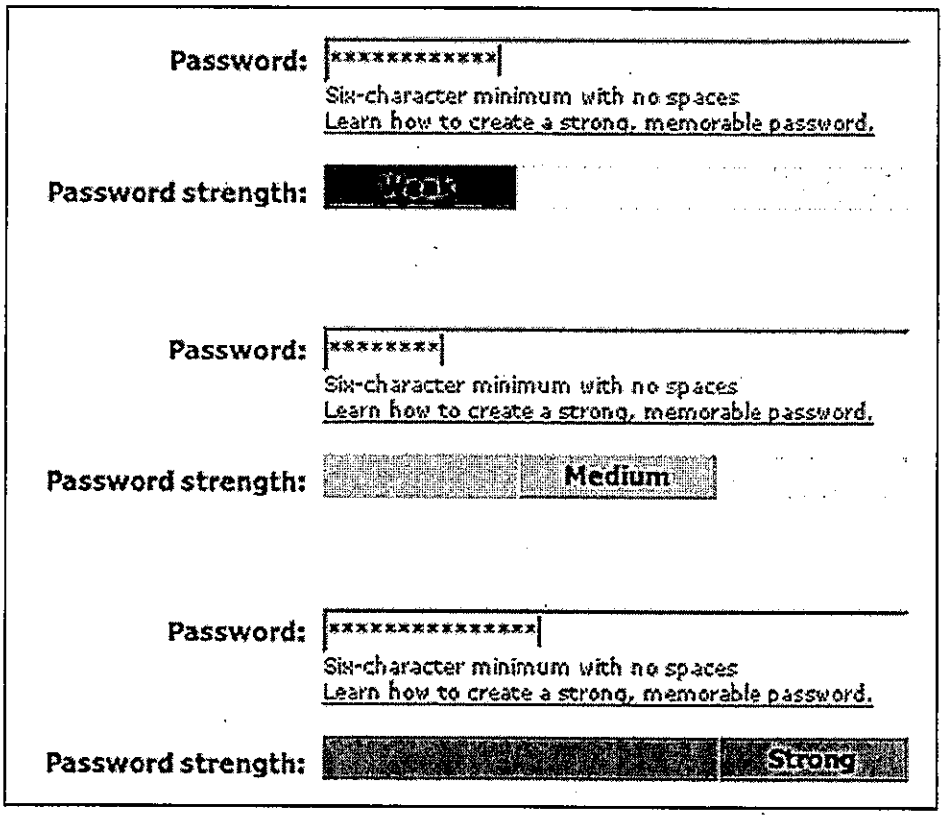
Continued .....

Question 3:

a) How identification, authentication, and authorization differ? Explain each of them by using GMAIL login process as an example.

[6 marks]

b) Refer to the figure below, what do you understand about password strength?



[2 marks]

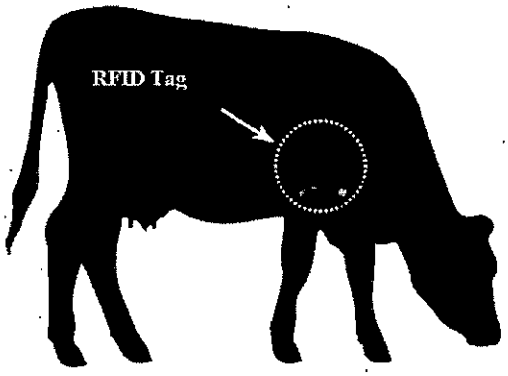
c) Apply an encryption algorithm on a retina template can tackle the issue of personal privacy. Is it true?

[2 marks]

Continued .....

Question 4:

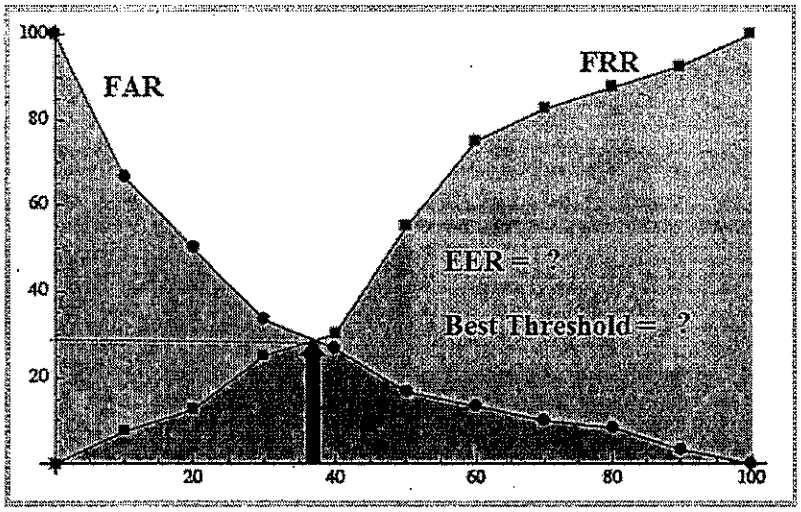
a) Livestock farmers in Kenya are set to benefit from a technology meant to tame cattle rustling in Kenya with the introduction of an electronic tracing chip (RFID) at a time when reports indicating that the vice claims over 600 lives and displaces thousands annually.



Why it is effective? Use a picture illustration or diagram flow to explain your answer.

[6 marks]

b) Define and calculate the Equal Error Rate (EER) and best threshold based on the figure below.



[4 marks]

Continued .....

Question 5:

a) Being introduced since 2019, WhatsApp users can now rely on the mic feature in their Android or iOS keyboard to dictate messages and send to contacts. This means WhatsApp users do not have to type messages, though they will need to manually press send in order to push the messages across. Also, this feature can be used for other apps too, like typing a mail on Gmail.

Is this a voice recognition? Explain your answer.

[4 marks]

b) Continuous authentication works by assessing user behavior patterns on an ongoing basis. Unlike traditional authentication, which evaluates users just once at login, continuous authentication considers changing risk factors such as location, device posture, and other behavioral data.

Suggest a biometric modal which you think fit to be used for continuous authentication in a mobile phone. Justify your answer.

[3 marks]

c) In November 2021, Facebook announced that it will end its use of facial recognition software and delete facial data on more than a billion people, a sudden reversal for one of the Internet's biggest face-scanning systems that could reinvigorate scrutiny about the software's expanding prevalence around the world.

Discuss your opinions on this decision made by Facebook, from the perspective of privacy continuum.

[3 marks]

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